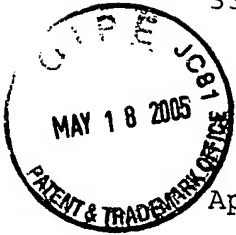


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JCO6 Rec'd PCT/PTO 18 MAY 2005

PCT



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Ralph Nonninger, et al. ) Examiner  
Serial No.: 10/526,442 ) Unknown  
Filed: 03/02/2005 ) Art Unit  
For: COLLOIDAL SYSTEM OF CERAMIC ) Unknown  
NANOPARTICLES )

May 2005

SUBMISSION OF INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

Commissioner for Patents  
P.O. Box 1450  
Arlington, Virginia 22313-1450

Dear Sir:

Enclosed herewith is a translation of the International Preliminary Examination Report for the corresponding PCT Patent Application. Please enter this document into the file of the hereinabove subject U.S. Patent Application.

Respectfully submitted,

Walter A. Hackler, Reg. No. 27,792

Attorney of Record

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HEREBY CERTIFY THAT THIS CORRESPONDENCE IS  
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5/16/05  
DATE SIGNED: WALTER A. HACKLER  
REG. NO. 27,792

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From the INTERNATIONAL BUREAU OF PATENT COOPERATION

Rec'd PCT/PTO 18 MAY 2005

NOTIFICATION OF TRANSMITTAL  
OF COPIES OF TRANSLATION  
OF THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT  
(PCT Rule 72.2)

To:

KOHLER SCHMID + PARTNER PATENTANWÄLTE GBR  
Ruppmannstrasse 27  
70565 Stuttgart  
ALLEMAGNE

Date of mailing (day/month/year)  
28 April 2005 (28.04.2005)

Applicant's or agent's file reference  
P8049PCT

International application No.  
PCT/DE2002/003237

International filing date (day/month/year)  
03 September 2002 (03.09.2002)

Applicant

ITN-NANOVAION GMBH et al

IMPORTANT NOTIFICATION

1. Transmittal of the translation to the applicant.

The International Bureau transmits herewith a copy of the English translation made by the International Bureau of the international preliminary examination report established by the International Preliminary Examining Authority.

2. Transmittal of the copy of the translation to the elected Offices.

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following elected Offices requiring such translation:

AZ, CA, CH, CN, CO, GH, KG, KP, KR, MK, MZ, RU, TM

The following elected Offices, having waived the requirement for such a transmittal at this time, will receive copies of that translation from the International Bureau only upon their request:

AE, AG, AL, AM, AP, AT, AU, BA, BB, BG, BR, BY, BZ, CR, CU, CZ, DE, DK, DM, DZ, EA, EC, EE, EP, ES, FI, GB, GD, GE, GM, HR, HU, ID, IL, IN, IS, JP, KE, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MN, MW, MX, NO, NZ, OA, OM, PH, PL, PT, RO, SD, SE, SG, SI, SK, SL, TJ, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report.

It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.

The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Authorized officer

Ellen Moyse

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Translation

PATENT COOPERATION TREATY

PCT/DE2002/003237



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P8049PCT	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/DE2002/003237	International filing date ( <i>day/month/year</i> ) 03 September 2002 (03.09.2002)	Priority date ( <i>day/month/year</i> )
International Patent Classification (IPC) or national classification and IPC C04B 35/622		
Applicant ITN-NANOVATION GMBH		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.  <input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).  These annexes consist of a total of <u>2</u> sheets.
3. This report contains indications relating to the following items:  I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application

Date of submission of the demand 18 October 2003 (18.10.2003)	Date of completion of this report 29 November 2004 (29.11.2004)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

## I. Basis of the report

## 1. With regard to the elements of the international application:\*

- ☐ the international application as originally filed
- ☒ the description:  
pages \_\_\_\_\_ 1-8 \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☒ the claims:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, as amended (together with any statement under Article 19  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_ 1-7 \_\_\_\_\_, filed with the letter of 15 October 2003 (15.10.2003)
- ☐ the drawings:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.  
These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

## 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☒ the claims, Nos. \_\_\_\_\_ 8 \_\_\_\_\_
- ☐ the drawings, sheets/fig \_\_\_\_\_

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	1-7	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1-7	NO
Industrial applicability (IA)	Claims	1-7	YES
	Claims		NO

## 2. Citations and explanations

## 1. Reference is made to the following documents:

D1: BURGARD D ET AL: "SYNTHESIS AND COLLOIDAL PROCESSING OF NANOCRYSTALLINE (Y2O3-STABILIZED) ZRO2 POWDERS BY A SURFACE FREE ENERGY CONTROLLED PROCESS", MATERIALS RESEARCH SOCIETY SYMPOSIUM PROCEEDINGS, MATERIALS RESEARCH SOCIETY, PITTSBURG, PA, US, vol. 432, 8 April 1996 (1996-04-08), pages 113-120, XP002066069, ISSN: 0272-9172

D2: DATABASE CA [Online] CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; BURGARD D ET AL: "Manufacture and processing of nanoscale (stabilized) ZrO2 by a colloid-chemical process", XP002236758, found in the STN Database, accession no. 128:131321

D3: GOEBBERT C ET AL: "Wet chemical deposition of ATO and ITO coatings using crystalline nanoparticles redispersable in solutions", THIN SOLID FILMS, ELSEVIER-SEQUOIA S.A. LAUSANNE, CH, vol. 351, nos. 1-2, 30 August 1999 (1999-08-30), pages 79-84, XP004183070 ISSN: 0040-6090

/...

- D4: DE 198 59 852 A (INST NEUE MAT GEMEIN GMBH;  
BAYER AG (DE)) 29 June 2000 (2000-06-29)
- D6: DATABASE CA [Online] CHEMICAL ABSTRACTS  
SERVICE, COLUMBUS, OHIO, US, NONNINGER RALPH  
ET AL: "Development of new materials by  
chemical nanotechnologies", XP002236759, found  
in the STN Database accession no. 132:268559
- D6: DATABASE CA [Online] CHEMICAL ABSTRACTS  
SERVICE, COLUMBUS, OHIO, US; GOEBBERT D ET AL:  
"Preparation of conducting ultrafiltration  
membranes from redispersible, nanoscaled,  
crystalline SnO<sub>2</sub>:Sb particles",  
XP002236760, found in the STN Database,  
accession no. 132:27153
- D7: US-B1-6 261 510 (TERPSTRA RINSE ALLE ET AL)  
17 July 2001 (2001-07-17).

2. The subject matter of claim 1 appears to be novel  
over D1 to D7 (PCT Article 33(2)). The reasons are  
as follows:

Although D1 (figure 5) and D2 (figure 4) disclose  
particle size distributions in which the maximum  
number distribution is 20 nm and the majority of the  
particles are between 15 and 25 nm in size, it is  
indicated that 90% of the particles are less than 30  
nm in size and, therefore, fewer than 90% of the  
particles are between 15 and 25 nm in size.

Documents D3 and D6 relate to ITO and ATO  
suspensions.

Document D4 discloses nanoscale rutile powder.

/...

Document D5 relates to nanoscale ceramic powder in general.

Document D7 relates to hollow ceramic fibres.

3. The subject matter of the claims fails to meet the requirements of PCT Article 5. The reasons are as follows:

Pursuant to PCT Article 5, disclosure of the invention must be sufficiently clear and complete for the invention to be carried out by a person skilled in the art. The claimed difference relative to the prior art must be clear from the application. The present application contains no detailed information or examples for use in carrying out the invention. A person skilled in the art would be unable to carry out the invention. Furthermore, there are no measurements that might serve as evidence that the claimed particle distribution would be obtained. There is also no information as to the method of measurement for determining the particle size distribution.

4. In view of the deficiencies in the disclosure, no inventive step can be acknowledged (PCT Article 33(3)).